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Two studies on polarization

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Effects of information exchange I

This study was primarily aimed at understanding the role that *arguments* play in free discussion, in producing the polarization effect. Under the traditional polarization design it is not possible to isolate factors responsible for the polarization effect directly.

We shall derive our hypothesis through a process of elimination. Various studies have demonstrated that a unanimous group decision is not a necessary condition for the production of polarization. Further it has been demonstrated that sheer observation of free discussion groups, which do not reach any group decisions produce polarization in the observer's judgment. Such studies (e.g., Bell and Jamison, 1970; Kogan and Wallach, 1967; Lamm, 1967; St. Jean, 1970) have consistently demonstrated that a significant polarization effect is found in the personal decisions of the observers if one compares the post-viewing/hearing decisions with their initial decisions.

Again such studies do not provide an unambiguous demonstration of the actual factors producing the polarization effect. Is it the content of the group discussion, i.e., the arguments, the choices of the members of the group discussion, the observer's awareness of the general drift of the discussion or some vicarious experience of the group discussion as a whole that produces polarization in the observer's judgments?

Recent studies have focused on the role of group discussions and their content. For example, St. Jean demonstrated a polarization in the direction of risk in discussions involving only arguments where group members were not allowed to exchange their initial decisions (1970). This finding was replicated by Clark *et al.* (1971). Silverthorne (1971) has demonstrated that on items giving rise to polarizations in the risky direction, a very high proportion of the arguments in the discussions of these items were risky, and a reverse pattern was observed in discussions

of items giving rise to cautious polarizations. Of course, this still leaves open the question of causality. Do the arguments produce polarizations or are the arguments rationalizations for particular positions? In order to clarify this question, Silverthorne systematically varied the preponderance of arguments through differential subject instructions, e.g., one group was asked to give arguments for risk, the other arguments in favour of caution. As a consequence of these instructions, he found that significant risky and cautious polarizations were obtained dependent on the type of instructions used. The question, in our view, is still open, for the instructions *themselves* may have directly channeled the direction of the polarizations rather than the types of arguments raised. Myers and Bishop (1971) obtained similar results to the initial section of Silverthorne's study, a finding which was initially reported by Nordhøy (1962).

The importance of the relevant information elicited in group discussions was also emphasized by Madaras and Bem (1968). These authors argued that if general cultural values were elicited, as Brown (1965) maintains, then a shift should be observed on items which were not discussed. In their study, Madaras and Bem demonstrated that this was not the case and concluded that the relevant information in the group discussion was the content rather than just an exchange of initial decisions. A replication of this study by Graham and Harris (1969), on the other hand, demonstrated significant polarizations in the risky direction on non-discussed items. Alker and Kogan's (1968) study makes this picture even more confusing. They used one form of the Choice Dilemma Questionnaire (CDQ) (*cf.* Kogan and Wallach, 1964) for the pretest and a second form after the group discussion and obtained a significant polarization in the direction of risk on the second version. In yet another condition, Alker and Kogan found cautious polarizations after a task-irrelevant discussion on problems pertaining to ethics. Clark and Willems (1970), on the other hand, found no shift after a discussion which was irrelevant to the judgmental tasks.

The picture presented by these studies is not a clear one. There is no study which provides direct evidence in favour of relevant information (besides an exchange of initial decisions) being the medium producing the polarization effect. This point was taken up in this study.

The hypothesis subjected to test in this study was: Relevant information expounded either by group discussion or by other means leads to a polarization of individual judgments. A consequence of this hypothesis is that it proposed that the polarization phenomenon is not necessarily due to group interaction but rests on the acquisition of information that is relevant to the task. It is not further specified, at present, why this information polarizes individual judgments and how it does so. As operationalized the hypothesis we tested was whether or not the

prominent arguments elicited through the group discussions did have an effect on polarization.

Method

Sixty undergraduates from the London School of Economics and Political Science and the City of London Polytechnic participated in this study. They were all majoring in disciplines other than psychology. No specfic quotaing system was employed in the selection of subjects with respect to sex because it has been shown repeatedly that the polarization effect is not modified by or dependent upon the sex of the subjects ($N = 60$, 45 males and 15 females).

The study consisted of two conditions, an experimental and a control group in which repeated measures were utilized. In both cases the subjects were first pretested with the CDQ, omitting one item on American soccer. After a week the CDQ was readministered. The control group received the pretest version and the experimental group received a revised CDQ (*cf.* below) in which the prominent arguments (*cf.* below) raised in group discussions were listed. There were 30 subjects in each condition.

Selection of prominent arguments

In a pilot study preparatory to this experimental study ten four-person-group discussions were conducted with the CDQ (11 items). The students participating in this pilot study ($N = 40$) were undergraduates at the University of London (University College) studying international relations. They were given the standard instructions and were run in the experimental condition utilized in most of the polarization studies employing the CDQ (i.e., pretest, group discussion, posttest). The questionnaire was revised to eliminate gross Americanisms to make it more relevant to a British subject pool. All group discussions were tape recorded as one aim of this pilot study was to obtain transcripts of the group discussions and analyze the types of arguments which appeared.

On the basis of these tape-recorded group discussions, a breakdown of the most prominent arguments was conducted. This consisted of a simple content analysis in which arguments were selected on the basis of the criterion that they appeared in the discussions of more than half on the ten groups employed. The intervoter reliability between the two coders utilized was satisfyingly high ($r = .92$). These prominent arguments were then presented to a pool of ten subjects (not participant in the pilot study) and rated on an 11-point scale for relevance to the items in question. All the arguments extracted from the group discussions were, in practice, rated as highly relevant in relation to the particular items they corresponded to

(range of means 7.63 to 10.96, where irrelevant corresponds to a scale position of 0 and relevant to 11).

The revised CDQ

On the basis of these two preliminary pilot studies a revised version of the CDQ was prepared, in which the major change consisted in a listing of the prominent arguments after each dilemma. These were included in the questionnaire immediately subsequent to the original item in the following form: 'Below are listed arguments and perspectives raised in discussions on this situation . . . (arguments). Consider the arguments you have generated and those listed above and then check the lowest probability that you would consider acceptable . . .', etc.

Results

In Table 1 the pretest and posttest means for the experimental and control conditions are presented item by item. There has been a considerable amount of confusion in previous research on the CDQ because polarization has been calculated through the difference between *average* pretest level and *average* posttest level (i.e., across items). This type of analysis conceals effects which are item-specific (*cf.* Cartwright, 1971). For this reason we have presented our data item by item. The average polarization for each item was obtained by comparing the posttest control group mean with the posttest experimental mean. The data are presented in Table 2. Not all the mean differences reached significance. However, on five items (1, 3, 6, 7 and 9) a significant polarization in the risky direction was obtained in the experimental group. On all items, with the exception of item 4 the experimental group considered alone polarized in the risky direction. Also in the control group posttest item means, with the exception of items 4 and 8, showed a polarization in the direction of risk. No attempt was made to compare the *magnitude* of the polarizations with that in previous studies, as all of these studies have been conducted with American undergraduates, and the differences or similarities would most probably be open to alternative interpretation of cultural differences.

Discussion

The findings of this study are supportive of the 'hypothesis of relevant information expounded'. The mere presentation of the prominent arguments which appear in group discussions seems a sufficient vehicle for the production of the polarization effect. It is concluded, therefore, that, *all other things being equal,* one of the main factors responsible for polarization in group interaction is the content of group discussion or, more specifically, the exchange of arguments pertaining to each item.

Table 1. *Pretest and posttest means on the 11 CDQ items for experimental condition and control groups*

	Item no.	1	2	3	4	5	6	7	8	9	10	11
Control condition	Pretest X	4.79	6.98	5.34	6.98	4.54	4.52	5.30	4.81	5.30	3.66	7.65
	Pretest X	4.82	6.75	5.42	7.02	4.46	4.58	5.42	4.91	5.21	3.42	7.82
Experimental condition	Posttest X	4.93	6.92	5.54	7.21	4.47	4.43	5.46	4.89	5.19	3.57	7.52
	Posttest X	3.50	6.14	3.96	7.25	3.61	2.50	4.04	4.93	3.70	3.07	7.04

Table 2. *Mean differences and significance of polarization magnitudes*

Item no.	1	2	3	4	5	6	7	8	9	10	11
Pretest mean differences (control group - experimental group)											
	−0.14*	0.06	−0.20	−0.23	0.07	0.09	−0.16	−0.08	0.11	0.09	0.13
t-values	0.19	0.09	0.30	0.33	0.11	0.14	0.23	0.11	0.20	0.17	0.23
Posttest mean differences (control group - experimental group)											
	1.32	0.61	1.46	0.23	0.85	2.08	1.38	−0.02	1.51	0.35	0.78
t-values	2.71****	0.89	3.13****	0.41	1.41*	4.89*****	2.48***	0.03	2.76****	0.67	1.47
Pretest-posttest mean differences (experimental group)											
	1.43	0.78	1.58	−0.04	0.86	1.93	1.42	−0.04	1.49	0.50	0.48
t-values	3.21****	1.21	2.93*****	0.07	1.33*	3.23****	1.98**	0.05	2.87****	0.89	0.77

* Negative signs indicate polarization in the cautious direction, positives in the risky
* $p = .20$; ** $p = .10$; *** $p = .02$; **** $p = .01$; ***** $p = .001$; (all t-tests two-tailed)

This interpretation can be approached by looking at the function of the group discussion, bearing in mind the type of item one has in the CDQ. The CDQ items provide a brief description of a dilemma situation. The subjects are instructed to advise the 'person in the dilemma' over what odds he should accept for an element in a risky decision, before making up his mind which way to act, e.g., the odds the subject would consider advisable for a chess player to stipulate before making a risky move. The brevity of the items makes it very likely that additional information has to be generated from past experience in order to arrive at a decision. This process is further strengthened by the ambiguity of the tasks which forces one to make certain subjective assumptions about them in order to make decisions at all.

With these properties of the items in mind, we can postulate additional functions of group discussion over and above the information exchange proposed by Brown (1965): (a) The group discussion serves to pool not only the *judgments* but also the *arguments* used by the members of the group in arriving at their individual decisions and makes these available to all. Thus, every member of the group is provided with information in addition to that they themselves have generated. This results in further expanding the number of cognitive elements involved in the task. (b) Furthermore, the group discussion serves to generate *new* arguments, i.e., ones not used by the members when they arrived at their initial decisions but which evolved during interaction. This function, like (a), results in new dimensions entering the decision task. (c) The implicit theories and cue interpretations used to come to initial individual decisions are made explicit.

If one considers how these processes, taking place in the group discussion, serve to redefine the meaning of the items, then it becomes apparent that they can play an important role in the causation of the 'polarization effect'. In fact, from these considerations, one can conclude that the most important difference between the initial and the post-discussion individual decision-making conditions is in the information available. This is also supported by an earlier study reported by the author (Semin and Glendon, 1973).

This study raises considerable doubts as to the validity of the contention that the polarization phenomenon is a true group phenomenon. In fact, one major inference from the results of this study is that the polarization effect is not a true group phenomenon since it can be produced in individuals not participating in any group activity at all.

One major objection that could be raised to this study is that the arguments which have been incorporated in the revised version of the CDQ have a 'channeling' effect on the respondents. The demand characteristics (Orne, 1969, 1970) of the revised CDQ might be such as to channel the responses of the subjects towards verification of the experimenter's hypothesis. Our post-experimental discussions with the subjects, however, did not reveal any hypotheses held by the respondents indicative of awareness of the experimenter's intention or any report that they were influenced at all by the arguments.

Effects of information exchange II

The present study was undertaken to clarify further the role which relevant information plays in the polarization phenomenon. The conceptualization underlying this study is a reflection of the 'relevant information expounded hypothesis', i.e., if the relevant information, usually brought up in group discussions, is provided before the group discussion in the initial individual decision-making period, then, according to the 'relevant information expounded hypothesis', no polarization effects should be observed subsequent to group discussion. This is one of the main conclusions that can be derived from our earlier studies, including that discussed in the first section (Semin and Glendon, 1973).

Thus, the basic hypothesis of this study was: Group interaction will generate no additional polarization if all content-relevant information expounded in group discussions is provided for the subjects before they embark on a group discussion of the items involved.

Method

Sixty students participated in this study, all undergraduates at the London School of Economics and Political Science. They were majoring in subjects other than psychology and were randomly assigned to the conditions. The *control condition* consisted of a pretest-posttest only, with a filler in between and was conducted in one session. The filler was the Machiavellianism questionnaire, Mach V (Christie and Geis, 1970). Thirty subjects were employed. Subjects were taken in groups of five to eight, and the questionnaires were administered. The revised Choice Dilemma Questionnaire (CDQ) with the prominent arguments (*cf.* above) was used. In the *experimental condition,* after the revised CDQ was administered indvdually (always in groups of five), the subjects sat around a table and were given instructions for group discussion to consensus. After the 11 items were discussed, the subjects were given the revised CDQ again to fill in individually. With the administration of the posttest the experiment was over. The subjects were all interviewed in the same groups of five and debriefed. Six five-person groups were conducted under the experimental condition.

Results

The results of this study are presented in Tables 3 and 4 in which two-tailed *t*-tests were employed to index differences. The pretest differences between the experimental and control group were not significant. As can be seen from Table 3, no significant shifts were obtained in the experimental condition. What is more, the non-significant polarizations obtained were not systematic and moved in both

the cautious and the risky direction. Neither the group decisions nor the post-discussion decisions of the experimental group reached a polarization magnitude that is significantly different from the control group's pretest decisions or the experimental group's pretest decisions. These results are strongly supportive of the 'relevant information expounded hypothesis'. With information provision prior to group discussion no significant polarizations occurred. This result is in marked contrast to the shifts so frequently reported under standard (i.e. no prior information) group discussion to consensus conditions.

Table 3. *Item means of the 11 CDQ items in the experimental and control group conditions*

	Item no.	1	2	3	4	5	6	7	8	9	10	11
Control condition	Pretest means	3.97	5.83	4.31	7.56	3.93	3.13	3.67	5.23	4.10	3.62	8.20
	Posttest means	4.06	5.72	4.42	7.21	4.13	3.28	4.02	5.01	4.00	3.42	7.91
Experimental condition	Pretest means	4.20	5.49	4.72	7.70	4.12	3.25	3.98	4.70	4.73	3.40	7.12
	Group decision means	3.33	6.20	4.33	8.17	3.66	3.42	4.00	5.00	3.78	3.27	6.93
	Posttest means	3.33	6.13	4.66	7.13	4.23	3.02	4.01	4.97	3.98	3.11	7.42

Discussion

The findings of this experimental study clearly support our contention that the arguments raised in group discussions are the main vehicles of the polarization effect. In conjunction with the earlier study, these findings provide clear evidence that group interaction is not a necessary factor in polarization and obviously throw doubt on the validity of explanations which take as their central argument the proposition that the polarization effect is a true group phenomenon, i.e., 'an influence of group "decision-making" (problem solving) that results from interaction among group members' (Secord and Backman, 1964, p. 374). The effects of polarization appear to result from group interaction but actually do not, and, therefore, our conclusion is that the polarization effect is a pseudo-group phenomenon. Such arguments as presented by the 'diffusion of responsibility explanation' (e.g., Wallach, Kogan and Bem, 1962, 1964) or numerous explanations which can be subsumed under the 'leadership explanation' are rendered doubtful. The

Table 4. *Mean differences and their significance*

Item no.	1	2	3	4	5	6	7	8	9	10	11
Pretest mean differences (control vs group condition)	−0.23	+0.34	−0.41	−0.14	−0.19	−0.12	−0.31	+0.53	−0.60	+0.22	+1.08
t-values	0.39	0.39	0.56	0.19	0.30	0.21	0.43	0.73	1.04	0.31	1.25
Posttest mean differences (control vs exp. condition)	+0.73	−0.41	−0.24	+0.08	−0.10	+0.26	+0.01	+0.04	+0.02	+0.31	+0.49
t-values	1.05	0.58	0.40	0.14	0.17	0.45	0.02	0.06	0.04	0.54	0.73
Pretest - group decision mean differences (exp. group)	+0.87	−0.71	−0.39	−0.46	+0.46	−0.17	−0.02	−0.30	+0.95	+0.13	+0.19
t-values	0.86	0.47	0.28	0.35	0.50	0.18	0.02	0.36	0.96	0.11	0.13

'polarization explanation', which in its more recent versions (e.g., Moscovici and Lecuyer, 1972) has taken the position that the group interaction is an essential factor in the production of the commitment process, is also called into question. Here we would note that the vitiation of this particular proposition of the 'polarization explanation' does not necessarily mean that its additional propositions are thereby also brought into question.

A question still remains concerning the exchange of initial decisions and the role these play in providing a 'frame of reference' within which the group decisions are made and the manner in which this particular frame of reference influences the polarization effect. From our present study it appears that Brown's (1965) proposed 'exchange of initial decisions' process does not play a role in the polarization effect. A case for Brown's process might still be made if the initial group decisions were homogeneous, and the absence of the polarization effect could be attributed to this cause. However, the distribution of the initial decisions was far from homogeneous; therefore, the absence of a shift cannot be explained in terms of the distribution of initial decisions in the groups (*cf.* Ellis *et al.*, 1969; Vinokur, 1969, etc.).

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